AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0004] with the following:

The input to a digital Class-D amplifier is a series of (eg PCM) digital words representing signal amplitude levels over time. The over-sampling or interpolation filter adds additional samples from the incoming audio source samples by interpolating between the actual samples, thereby effectively increasing the sampling rate as is known. The over-sampled audio signal is fed to the Converter 2 which comprises a modulator to convert these words into a series of bits, (PDM) or on/off pulses of varying width (PWM) suitable for switching the switching element 3. The input signal modulates the output pulse width in the case of a Pulse Width Modulator, or the output pulse (bit) density in the case of a sigma-delta modulator. The power switch 3 switches a much larger output voltage into a low pass filter 4 which turns this signal into an ~~analogue~~ analog signal for applying to the headphone or speaker load 5. The switch element 3 is either fully on or off and is switched at a high frequency with a duty cycle that is proportional to the amplitude of the input signal.

Please replace paragraph [0005] with the following:

Referring to FIG. 2, a PCM-PWM Converter is shown which receives a series of digital words (PCM) representing signal amplitude samples over time. The PCM-PWM Converter 2 ~~utilises~~ utilizes a ~~linearliser~~ linearizer 6, a word length reduction circuit (WLR) 7 and a PWM modulator 8.

Please replace paragraph [0007] with the following:

A problem with PWM conversion of digitally sampled signals however, is that an error arises because the digital sample is held until it crosses the sawtooth waveform, whereas the equivalent ~~analogue~~ analog signal is still varying. Therefore a

width-error occurs in uniformly-sampled PWM. This can be seen in ~~figure~~ Figure 3, which also shows Naturally Sampled Pulse-Width Modulation in which the corresponding ~~analogue~~ analog input waveform is compared with the sawtooth waveform. This is theoretically free from harmonic distortion. In uniformly sampled PWN, the input waveform has already been regularly sampled at the points shown, and since the amplitude of the samples is different than in naturally sampled PWM at the point where the held sample crosses the sawtooth waveform, the width of the pulses are also different as shown.

Please replace paragraph [0012] with the following:

In M.S. Pedersen, M. Shajaan, "All Digital Power Amplifier Based on Pulse-Width Modulation," AES 96th Convention, February 1994. Preprint 3809, the sample-rate is increased using Interpolation filters to derive a ~~centre-point~~ center-point. Straight-line interpolation is then used between the ~~centre-point~~ center-point and the original points to derive a more accurate cross point. The sampling process can thereby be made to closely match the original naturally sampled waveform, hence the harmonic distortion is much reduced.

Please replace paragraph [0016] with the following:

At high order it is common to use sigma-delta modulation, which commonly uses a ~~cascade-of-integrator~~ cascaded integrator structure for its loop filter that offers very low sensitivity to coefficient quantization. In ~~practise~~ practice it is possible to quantize the coefficients to only 1- or 2-bits without compromising the performance of the modulator. The multiplier can then be replaced by a small number of adds, reducing the complexity of the silicon design.

Please replace paragraph [0019] with the following:

Alternatively a Noise-shaper can be used, which does not filter the input signal, and so does not affect the performance of the ~~lineariser~~ linearizer. A commonly used class of high-order noise shaper WLR circuits are described in S.K. Tewkesbury, "Oversampled, Linear Predictive and Noise-Shaping Coders of Order N>1," IEEE Trans. Circuits and Systems, vol CAS-25, pp 436-447, July 1978. This type of WLR circuit, ~~whilst~~ while efficient to implement, has the disadvantage of having high gain at high frequencies, resulting in high levels of out-of-band noise. This increases the amount of noise-intermodulation introduced by the PWM modulator 8, producing a poor SNR at the output of the Converter 2.

Please replace paragraph [0027] with the following:

There is also provided a corresponding method of reducing the word length of a sample, especially for application in a ~~Converter~~ converter for a digital amplifier. There is also provided a corresponding computer program for implementing the methods provided.